CLAIMS

1. (previously presented/original) A computer method, comprising executing at least the following operation in at least one data processing device:

establishing a mapping from lists and scalars corresponding to at least one data source into XML elements and attributes.

2. (original) At least one medium readable by a data processing device and embodying at least one result of the method of claim 1.

3. (previously presented/original) A data processing device comprising:

- the at least one medium according to claim 2, and
- at least one processor configured to use the at least one medium to produce an XML document based on the mapping.

4-6. (cancelled)

7. (previously presented/original) The method of claim 1, wherein the data source is a relational database.

8. (original) At least one medium readable by a data processing device and embodying at least one result of the method of claim 7.

9. (/previously presented/original) A data processing device comprising

- the at least one medium according to claim 8; and
- at least one processor configured to use the at least one medium to produce the XML document based on the mapping.

10. (previously presented/original) The method of claim 1, further comprising executing the following operation in the data processing device:

expressing the mapping in constructs of a mapping language.

11. (previously presented/original) At least one medium readable by a data processing device and embodying at least one result of the method of claim 10.

12. (previously presented/original) A data processing device comprising

- the at least one medium according to claim 11; and
- at least one processor configured to use the at least one medium to produce an XML document based on the mapping.

13-15 (cancelled).

16. (previously presented/original) The method of claim 90, wherein the constructs comprise at least one of a value specification and a binding specification.

17. (previously presented/original) At least one medium readable by a data processing device and embodying at least one result of the method of claim 16.

18. (previously presented/original) A data processing device comprising:

- the at least one medium according to claim 17; and
- at least one processor configured to use the at least one medium to produce an XML document based on the annotated DTD.

19. (previously presented) The method of claim 90, wherein

- at least one of the constructs comprises at least one parameter;
- the at least one of the constructs is adapted so that a value of the at least one of the parameters is determinable at a time of generation of at least one respective XML element associated with the at least one of the constructs.

20. (original) At least one medium readable by a data processing device and embodying at least one result of the method of claim 19.

21. (original) A data processing device comprising:

- the at least one medium according to claim 20; and
- at least one processor configured to
  - use the at least one medium to produce an XML document based on the mapping; and

- pass the value to the parameter.

22. (previously presented) The method of claim 90, further comprising executing the following operation in the data processing device: associating values and or formulas with the DTD.

23. (original) At least one medium readable by a data processing device and embodying at least one result of the method of claim 22.

24. (previously presented/original) A data processing device comprising:

- the at least one medium according to claim 23; and
- at least one processor configured to
  - use the at least one medium to produce an XML document based on the mapping ; and
  - perform the associating operation.

25. (original) The method of claim 22, wherein the associating includes associating one or more lists of data objects or formulas producing data objects with each DTD construct having a repetition symbol at the end.

26. (original) At least one medium readable by a data processing device and embodying at least one result of the method of claim 25.

27. (previously presented/original) A data processing device comprising:

- at least one medium according to claim 26; and
- at least one processor configured to
    - use the at least one medium to produce an XML document; and
    - perform the associating operation.

28. (original) The method of claim 22, wherein the associating includes associating one or more lists of data objects or formulas producing data objects with each DTD construct which is not a #PCDATA, a choice list, or an attribute list, and does not end with a repetition symbol.

29. (original) At least one medium readable by a data processing device and embodying at least one result of the method of claim 28.

30. (previously presented/original) A data processing device comprising:

- the at least one medium according to claim 29; and
- at least one processor configured to
    - use the at least one medium to produce an XML document based on the mapping; and
    - perform the associating operation.

31. (original) The method of claim 22, wherein associating includes associating a value or formula producing a value with each PCDATA, choice list, or attribute definition.

32. (original) At least one medium readable by a data processing device and embodying at least one result of the method of claim 31.

33. (previously presented/original) A data processing device comprising:

- the at least one medium according to claim 32; and
- at least one processor configured to
  - use the at least one medium to produce an XML document; and
  - perform the associating operation.

34. (original) The method of claim 22, wherein associating includes, not necessarily in the following order:

- first associating one or more lists of data objects or formulas producing data objects with a DTD construct;
- second associating at least one of the lists or formulas with at least one variable name; and
- using the variable name as a parameter in at least one other formula.

35. (original) At least one medium readable by a data processing device and embodying at least one result of the method of claim 34.

36. (previously presented) A data processing device comprising:

- the at least one medium according to claim 35; and

- at least one processor configured to
    - use the at least one medium to produce an XML document; and
    - perform the associating operation and included operations.

37. (original) The method of claim 1, further comprising executing the following operation in the data processing device: associating at least one respective environment with a respective XML element to be generated.

38. (original) At least one medium readable by a data processing device and embodying at least one result of the method of claim 37.

39. (previously presented/original) A data processing device comprising:
- the at least one medium according to claim 38; and
- at least one processor configured to
    - use the at least one medium to produce an XML document; and
    - perform the associating operation.

40. (original) The method of claim 37, wherein the at least one environment comprises
• information from a parent XML element of the respective XML element; and
• information from a binding specification of a DTD construct associated with the respective XML element.

41. (original) At least one medium readable by a data processing device and embodying at least one result of the method of claim 40.

42. (previously presented/original) A data processing device comprising:

- the at least one medium according to claim 41; and
- at least one processor configured to
  - use the at least one medium to produce an XML document; and
  - perform the associating operation.

43. (previously presented/original) The method of claim 37, wherein

- the mapping includes at least one respective specification corresponding to at least one respective XML element;
- the specification comprises at least one parameter for receiving a value upon generation of an XML document; and
- the method further comprises, upon generation of an XML document, sending the at least one parameter a value according to at least one variable/value pair in the at least one respective environment.

44. (original) At least one medium readable by a data processing device and embodying at least one result of the method of claim 43.

45. (previously presented/original) A data processing device comprising:

- the at least one medium according to claim 44; and
- at least one processor configured to
    - use the at least one medium to produce an XML document; and
    - perform the associating and sending operations.

46. (previously presented/original) At least one medium readable by at least one data processing device and embodying software adapted to perform operations comprising:

establishing a mapping from lists and scalars corresponding to at least one data source into XML elements and attributes.

47. (canceled)

48. (original) The at least one medium of claim 46, wherein the data source is a relational database.

49. (previously presented/original) The at least one medium of claim 46, wherein the operations further comprise:

expressing the mapping in constructs of a mapping language.

50. (canceled)

51. (previously presented) The at least one medium of claim 94, wherein the constructs comprise at least one of a value specification and a binding specification.

52. (previously presented) The at least one medium of claim 94, wherein

- at least one of the constructs comprises at least one parameter; and
- the at least one of the constructs is adapted so that a value of the at least one of the parameters is determinable at a time of generation of at least one respective XML element associated with the at least one of the constructs.

53. (previously presented) The at least one medium of claim 94, wherein the operations further comprise associating values and or formulas with the annotated DTD.

54. (previously presented) The at least one medium of claim 53, wherein the associating includes associating one or more lists of data objects or formulas producing data objects with each DTD construct having a repetition symbol at the end.

55. (original) The at least one medium of claim 54, wherein the associating includes associating one or more lists of data objects or formulas producing data objects with each DTD construct which is not a #PCDATA, a choice list, or an attribute list, and does not end with a repetition symbol.

56. (original) The at least one medium of claim 54, wherein associating includes associating a value or formula producing a value with each PCDATA, choice list, or attribute definition.

57. (original) The at least one medium of claim 54, wherein associating includes, not necessarily in the following order:

- first associating one or more lists of data objects or formulas producing data objects with a DTD construct;
- second associating at least one of the lists or formulas with at least one variable name; and
- using the variable name as a parameter in at least one other formula.

58. (original) The at least one medium of claim 46, wherein the operations further comprise associating at least one respective environment with a respective XML element to be generated.

59. (original) The at least one medium of claim 58, wherein the at least one environment comprises

- information from a parent XML element of the respective XML element; and
- information from a binding specification of a DTD construct associated with the respective XML element.

60. (original[16]) The at least one medium of claim 58, wherein

- the mapping includes at least one respective specification corresponding to at least one respective XML element;

- the specification comprises at least one parameter for receiving a value upon generation of an XML document; and
- the method further comprises, upon generation of an XML document, sending the at least one parameter a value according to at least one variable/value pair in the at least one respective environment.

61. (previously presented/original) At least one data processing device comprising:

- means for receiving data from at least one data source;

- at least one processor adapted to perform operations comprising:

establishing a mapping from lists and scalars corresponding to the data into XML elements and attributes.

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62. (canceled)

63. (previously presented) The at least data processing device of claim 61, wherein

- the at least one data source comprises at least two data sources, and the data sources are of different types; and
- the data sources are relational databases.

64. (previously presented/original) The at least one data processing device of claim 61, wherein the operations further comprise: expressing the mapping in constructs of a mapping language.

65. (canceled)

66. (previously presented) The at least one data processing device of claim 64, wherein the constructs comprise at least one of a value specification and a binding specification.

67. (original) The at least one data processing device of claim 64, wherein

- at least one of the constructs comprises at least one parameter; and
- the at least one of the constructs is adapted so that a value of the at least one of the parameters is determinable at a time of generation of at least one respective XML element associated with the at least one of the constructs.

68. (previously presented) The at least one data processing device of claim 96, wherein the operations further comprise associating values and or formulas with the annotated DTD.

69. (original) The at least one data processing device of claim 68, wherein the associating includes associating one or more lists of data objects or formulas producing data objects with each DTD construct having a repetition symbol at the end.

70. (original) The at least one data processing device of claim 68, wherein the associating includes associating one or more lists of data objects or formulas producing data objects with each DTD construct which is not a #PCDATA, a choice list, or an attribute list, and does not end with a repetition symbol.

71. (original) The at least one data processing device of claim 68, wherein the associating includes associating a value or formula producing a value with each PCDATA, choice list, or attribute definition.

72. (original) The at least one data processing device of claim 68, wherein the associating includes, not necessarily in the following order:

- first associating one or more lists of data objects or formulas producing data objects with a DTD construct;
- second associating at least one of the lists or formulas with at least one variable name; and
- using the variable name as a parameter in at least one other formula.

73. (original) The at least one data processing device of claim 61, wherein the operations further comprise associating at least one respective environment with a respective XML element to be generated.

74. (original) The at least one data processing device of claim 73, wherein the at least one environment comprises

- information from a parent XML element of the respective XML element; and
- information from a binding specification of a DTD construct associated with the respective XML element.

75. (previously presented/original) The at least one data processing device of claim 73, wherein

- the mapping includes at least one respective specification corresponding to at least one respective XML element;
- the specification comprises at least one parameter for receiving a value upon generation of an XML document; and
- the method further comprises, upon generation of the XML document, sending the at least one parameter a value according to at least one variable/value pair in the at least one respective environment

76. (previously presented) The method of claim 1, wherein

- the at least one data source comprises multiple heterogenous data sources; and
- the method further comprises
- using a pre-established DTD corresponding to the multiple heterogeneous data sources; and
- based on the DTD and the multiple heterogeneous data sources, adding annotations to the DTD to create an annotated DTD, such that an XML document generated from the annotated DTD is guaranteed to conform to the DTD.

77. (previously presented) At least one medium readable by a data processing device and embodying at least one result of the method of claim 76.

78. (previously presented) A data processing device comprising:

- the at least one medium according to claim 77; and

- at least one processor configured to use the at least one medium to produce the XML document based on the mapping.

79. (previously presented) The medium of claim 46, wherein

- at least one data source comprises multiple heterogenous data sources; and
- the operations further comprise
- using a pre-established DTD corresponding to the multiple heterogeneous data sources ; and
- based on the DTD and the multiple heterogeneous data sources, adding annotations to the DTD to create an annotated DTD, such that an XML document generated from the annotated DTD is guaranteed to conform to the DTD.

80. (previously presented) The data processing device of claim 61, wherein

- the at least one data source comprises multiple heterogenous data sources; and
- the operations further comprise
- using a pre-established DTD corresponding to the multiple heterogeneous data sources; and
- based on the DTD and the multiple heterogeneous data sources, adding annotations to the DTD to create an annotated DTD, such that an XML document generated from the annotated DTD is guaranteed to conform to the DTD.

81-83. (cancelled)

84. (previously presented) The method of claim 1, wherein the mapping is responsive to a user mapping specification.

85. (previously presented) The medium of claim 46, wherein the mapping is responsive to a user mapping specification.

86. (previously presented) The data processing device of claim 61, wherein the mapping is responsive to a user mapping specification.

87. (previously presented[1]) The method of claim 1, wherein the at least one data source comprises at least two data sources, and the data sources are of different types.

88. (previously presented[2]) At least one medium readable by a data processor and embodying at least one result of the method of claim 87.

89 (previously presented[3]) A data processing device comprising:

- the at least one medium according to claim 88; and
- at least one processor configured to use the at least one medium to produce an XML document based on the mapping.

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1 originally claim 4
2 originally claim 5

90 (previously presented[4]). The method of claim 10, further comprising executing the following operation in the data processing device: inserting the constructs into a DTD to create an annotated DTD.

91(previously presented[5]) At least one medium readable by a data processing device and embodying at least one result of the method of claim 90.

92(previously presented[6]). A data processing device comprising:

- the at least one medium according to claim 91; and
- at least one processor configured to
  - use the at least one medium to produce an XML document based on the mapping; and
  - perform the inserting operation.

93. (previously presented[7]) The at least one medium of claim 46, wherein the at least one data source comprises at least two data sources, and the data sources are of different types.

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3 originally claim 6
4 originally claim 13
5 originally claim 14
6 originally claim 15
7 originally claim 47

94 (previously presented[8]). The at least one medium of claim 46, further comprising executing the following operation in the data processing device: inserting the constructs into a DTD to create an annotated DTD.

95. (previously presented[9]) The at least one data processing device of claim 61, wherein the at least one data source comprises at least two data sources, and the data sources are of different types.

96. (previously presented[10]) The at least one data processing device of claim 64, further comprising executing the following operation in the data processing device: inserting the constructs into a DTD to create an annotated DTD.

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[8] originally claim 50

9. originally claim 62
10. originally claim 65